

## ABSTRACT OF THE DISCLOSURE

The present invention provides a method of extracting and recovering embryonic-like stem cells, including, but not limited to pluripotent or multipotent stem cells, from an exsanguinated human placenta. A placenta is treated to remove residual umbilical cord blood by perfusing an exsanguinated placenta, preferably with an anticoagulant solution, to flush out residual cells. The residual cells and perfusion liquid from the exsanguinated placenta are collected, and the embryonic-like stem cells are separated from the residual cells and perfusion liquid. The invention also provides a method of utilizing the isolated and perfused placenta as a bioreactor in which to propagate endogenous cells, including, but not limited to, embryonic-like stem cells. The invention also provides methods for propagation of exogenous cells in a placental bioreactor and collecting the propagated exogenous cells and bioactive molecules therefrom.